

REMARKS

The applicant thanks the Examiner for the indication that claims 1-7 and 17-31 are allowed, and that claims 8 and 15 are drawn to allowable subject matter. By this amendment, the application should now be in *prima facie* condition for allowance.

Accompanying this response is a request to revise the drawing figures. In particular, it is proposed to identify the electrode pads with the identifier "258A" on both Figures 7 and 8. Acceptance of the proposed correction in the next office action is requested.

Claims 8-10 and 16 have been amended. Claims 1-31 remain in the application.

The Examiner indicated an inconsistency in the drawings pertaining to the "electrode pads". It is noted that the specification indicates that the FPC substrate 257 has a metal layer sandwiched between two resin layers 258 (see page 28, at line 6, and see page 36, line 23). Upon review of the specification, it appears that the identifier "258" has been used to identify two different elements. Therefore, by this amendment, the specification has been corrected to refer to the "electrode pads" with identifier "258A". Accompanying this amendment is a proposed correction to the drawings which identifies the "electrode pads" as "258A" in both Figures 7 and 8. This revision should overcome the objection, and the Examiner is requested to indicate that drawings are now satisfactory.

The specification has been corrected at page 28 as the Examiner has suggested. The error appears to be typographical in nature and was introduced in the previous amendment. No new matter is added.

Claims 8 and 9 have been amended in the manner suggested by the Examiner. With respect to claim 9, the revisions have been implemented at an alternative location. Therefore, the objections lodged against each claim should now be overcome.

Claims 8 and 9 were rejected under 35 U.S.C. 112, second paragraph. Claim 8 has been amended in the matter suggested by the Examiner and should now be in condition for allowance. Similar to claim 8, claim 9 has been amended

to be directed to a method of optically aligning components of an optical write head. Similar to allowed claim 1, claim 9 requires that each of the rod lens array, the substrate support member and the driver circuit board are secured directly to a support member. In view of the amendment, claim 9 should now be in condition for allowance.

Claims 10-12, and 16 have been rejected as being anticipated by U.S. Patent 5,045,867 to Fuse. Claim 13 has been rejected as being obvious over Fuse. Claim 14 has been rejected as being obvious over Fuse in view of the Applicant's Admitted Prior Art. Each of these rejections is traversed.

Each of claims 10-14 and 16 pertain to the Figure 5 embodiment of the invention which employs flexible circuit board 257. As explained in the application, this embodiment of the invention provides advantages in terms of minimization in size, avoiding wiring bonding complications, and in assuring precision positioning of the chips by means of die bonding. With reference to Figure 5, it can be seen the flexible circuit board 257 extends from and electrically connects the driver circuit board 255 to the LED 250 on the substrate support member 251, where the LED opposes the rod lens array 254. In this configuration, the flexible circuit board accommodates the numerous alignment simplification techniques presented by the invention (e.g., use of precision reference planes A and B, use of screw 253 to achieve up and down vertical movement of the LED, etc.). It is noted that in particular, in this configuration, the flexible printed circuit board is interposed between the substrate and the LED chips. This enables the LED chips to be in alignment with the rod lens array 254.

With respect to Fuse, it is noted that the flexible printed circuit board 42 is provided primarily for manufacturing advantages as outlined in Figures 5a and 5b of Fuse, and it is not used to perform similar functions as outlined in the present invention (permitting some play for alignment using screw 253, size reduction, elimination of wire bonding connections, etc.). Rather with respect to each of the Figures in Fuse, it can be seen that the flexible printed circuit board is laid flat on a flat surface and operates in a manner similar to a rigid, flat board.

Moreover, in the configuration of Fuse, the flexible printed circuit board is interposed between the LED chips and the fiber bundles (46), not between the

substrate and the LED as is required in claim 10. This has several disadvantages.

First, with respect to the embodiment shown in Figure 4 of Fuse, it can be seen that the flexible printed circuit board must have a hole in it to permit transparent adhesive 45 to be positioned therein. This poses manufacturing complexities.

With respect to the embodiment shown in Figure 6 of Fuse, a portion of the flexible printed circuit board actual overlaps the fiber bundles (see bottom portion of 42c). Fuse expressly recognizes the disadvantage of this configuration in column 6, lines 61 and 62 where he states that the transmission efficiency of light is reduced.

In addition, in Fuse, the fiber bundle 46 is an optical Fuse for guiding the light emitted from the LED to the object 48 and it is different from the substrate as claimed. In Fuse, it is necessary to form a through hole so as to pass the emitted light through, whereas a through hole is not necessary for the claimed flexible printed circuit.

Claim 16 has similar feature requirements to claim 10. In particular, the substrate having rigidity must be on an opposite side of the flexible printed circuit sheet with respect to the LED chips. This permits the LED chips to be aligned with the rod lens array. Furthermore, the feature of “fixing the member having rigidity at a predetermined position on a support member having a rod lens array and a light-emitting device array drive circuit board mounted thereon beforehand with light emitting device array chips opposing said rod lens array”, is simply not taught or suggested by Fuse.

In view of the above, none of the claims are anticipated by Fuse. Furthermore, none of the claims would be obvious over Fuse, alone, or in combination with the Applicant's Admitted Prior Art. Specifically, the Admitted Prior Art does not make up for the deficiencies of Fuse since it does not show or suggest how or where to locate a flexible printed circuit board in an optical write head.

Therefore, each of the rejections is now overcome, and the claims should be in condition for allowance. Reconsideration and allowance of claims 1-31 at an early date is requested.

Should the Examiner find the application to be other than in condition for

allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephone or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,



Michael E. Whitham
Reg. No. 32,635



30743

PATENT TRADEMARK OFFICE

Whitham, Curtis & Christofferson, P.C.
11491 Sunset Hills Road, Suite 340
Reston, VA 20190

703-787-9400